

LEPROSY AND LEPER HOUSES.

BY

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LEPROSY may perhaps not be so inviting a subject as some which have been brought before this association.

A lady said to me the other day: "Well! I would not go to hear anything about leprosy, no! not for the world! "Why! I should be sure to catch it!" To which I replied: "Or think you had, which would be nearly as bad."

Now as I do not see any lepers here, I think I may safely guarantee you will not catch leprosy by hearing about it. And even if there were some lepers here, I would still guarantee that you would not contract it by sitting in this room with them. If it were communicable in such a manner I ought to have caught it several hundred times at least.

Now although leprosy may not be a very inviting subject, it is nevertheless a vitally important one; for it is not only a medical question but also a great public one, and so demands the attention of all scientific associations.

Moreover the insidious and progressive character of the malady, and the frightful deformities it occasions, are calculated to awake the greatest sympathy. Several causes have recently combined to bring the subject of leprosy prominently before the public.

First we had the statement made some months ago by the Rev. Mr. Wright, Rector of Grantham, who desired to make known to the world at large the important and highly interesting fact, that *at last* it had been shown by a terrible experiment at Honolulu, on a criminal condemned to death that leprosy may be communicated by inoculation. And since then the Rev. Mr. Wright has written a booklet on the matter and expresses a fear lest leprosy should spread in

this country. Next, a short time back, we had a representation respecting an old soldier in Ireland being a leper, and a proposal was made to convey him away to some leper asylum in India. But the military authorities would have nothing to do with him, as he was out of the service; and a vessel could not be found wherein they would receive the leper as a passenger. Next we have the lamented death of Father Damien who heroically devoted himself to the service of lepers, after a time contracting the disease and dying therefrom. In this connection it may be mentioned that in the 13th century, two of the wives of lepers, emulating the spirit of the Hindu lady who burns on the funeral pile rather than survive her husband, voluntarily shut themselves up with lepers, the result not being stated. The companionship, however, of leper husbands and wives is seen often enough in India, often the leper husband accompanying the non-leper wife and the reverse. Not from the motives actuating either Father Damien, or the leper ladies of old, but because the pairs do better in the mendicant line than if alone. Next we had a meeting presided over by H. R. H. the Prince of Wales for the graceful purpose of promoting a memorial to Father Damien, and to further the scientific study of leprosy in England and India. Next we have the case of a leper employed in connection with the sale of meat in London. Then there is the case of a general of the army employed in the Madras command, reported as returning to England with leprosy. Lastly we have a more recent report of the successor to Father Damien contracting leprosy.

On the above mentioned items, I purpose saying a few words. I do not however desire to appear before you as enunciating dicta *ex-cathedra*. For in these days of scientific progress he would be rash who confidently asserted or denied anything. I desire, however, to give my own impressions with regard to leprosy. I have spent many years of my life in countries where leprosy abounds, and it will perhaps not be egotistical if I further mention that I have during a prolonged service in the East always been interested in the subject and that especially during the last few years as head of the Medical Department in Western India where leprosy most abounds I have been called upon to advise the Indian Government on the matter and therefore have considered it necessary to give great attention to it.

Now first as regards the assertion of the Rev. Mr. Wright that it had *at last* been proved by experiment that leprosy is contagious. Although Mr. Wright stated that by a terrible experiment on a criminal, the contagiousness of leprosy had been *at last* proved, the inoculation being performed in 1885, and the person being certified as a leper in 1888, there was no necessity for any such proof. For the fact has long been known. Professors Damisch and Kobner proved by experiment that leprosy may be communicated to animals by inoculation. There is also the well authenticated case of a boy Miller who pricked himself with a needle used by a leper, from which injury leprosy developed. Then there was

a case of a medical student pricking himself when performing a post mortem examination on a leper. Within my own knowledge the disease has been communicated directly to a female employed in an Indian Hospital. All that is required is the transmission of leprous discharge, which contains the microbe or germ of leprosy to the healthy body. But in order that the poison may act, it is necessary that the poison should come into contact with an abrasion or sore of a healthy skin. An infinitesimal portion of leprous discharge is quite sufficient. In a hot country, such as India, where lepers abound, where most people do not wear shoes and stockings, where consequently peoples' feet are often scratched or wounded, and where habits are uncleanly, it will readily be conceived how frequently this accidental communication of leprous discharge may occur, not only directly but also indirectly, by soiled clothes, by wearing other peoples' slippers, or perhaps even by water. It is mentioned in the *Hospital* for last week (Nov. 16th, 1889) that the chaplain on Robben island, who has escaped contagion for twelve years, puts on an old glove when he touches even the door handle of a leper ward, always washes after visiting lepers, and uses a separate chalice for lepers. Some persons do not believe that leprosy is contagious; but as Dr. Abraham observed in a recent *Fortnightly Review*, one fragment of positive evidence carries more weight than a vast amount of negative evidence. And positive evidence has been shown. There is reason to believe that flies may be the media of contamination, and at some seasons flies are legion in India. A fly investigates a leprous sore, or leprous discharge, carries a particle of poison on its proboscis or feet, and next settles on some abrasion of the skin of a healthy person.

It has been demonstrated by Dr. Manson in China, that a mosquito may convey elephantiasis, and there is equal reason to believe that a mosquito may convey the germs of leprosy. That leprosy is communicated in the manners mentioned there is corroborative proof, in the fact that it most frequently commences in exposed parts as the head, the hands, and the feet.

I next refer again to the old soldier who could not be sent to India because no ship could be found to take him. The circumstances reported in connection with this leper are absurd in several ways. *First* it certainly would not benefit a leper to send him to the East. The Chinese indeed regard a visit to the colder north as the best means of relieving leprosy. And although lepers are found in European climates, and once were, it is said, common in European climates, it is doubtful if European leprosy of the present day is the inveterate disease as seen in the tropics, for in the present days the intensity of leprosy corresponds with the belt of maximum heat of the globe. *Secondly*, if it be realized that leprosy is conveyed as before mentioned by contact of leprous discharge with an abraded healthy skin, it will be seen that if this Irish leper had no open sores he might have been taken on

board ship with perfect safety. Even if he had open sores, he might have been taken safely under suitable precautions. Lastly, I am not aware of any leper asylum in India, where European lepers are received; for European lepers are scarce in India, and the necessity for their reception has not arisen. Under all the circumstances of the case, and especially as the leper would certainly grow worse more rapidly in a tropical than in a temperate zone, it is perhaps well for this Irish leper that St. Patrick of Ireland could not reappear, and again perform a miracle with which he is credited.

In remote times it is fabled, that as in the present day a ship could not be found to take a leper away from Ireland. Whereupon St. Patrick coming to the rescue, changed a stone into a vessel for the especial service of the leper.

With regard to Father Damien who has earned undying fame throughout the civilized world, in all human probability he contracted leprosy accidentally from some abrasion of his skin coming into contact with leprous discharge. There are very many instances of persons living near or with lepers for years and not contracting the disease, one of which has already been mentioned. And there are instances of the wife not contracting it from a leper husband and the reverse.

There is a case of a woman marrying four lepers in succession, yet remaining healthy.

In Calcutta there was the well known case of an Eurasian leper married to a healthy woman for many years. And there is the case of a Mahomedan married fifty years to a leper and not affected. This however, does not detract from the heroic conduct of Father Damien and I believe the public voice fully supports H. R. H. the Prince of Wales, as to a memorial for Father Damien. There is also a consensus of opinion that as proposed by the Prince, a commission of experts might advantageously study leprosy in India. There is not, however, the same consensus of opinion with regard to the advisability of establishing a leper ward in London. It is feared by some, there would be no lepers to fill it, and by others that lepers would flock to it, and that it would become a centre of infection. Now there are always several lepers in England, and there will probably be more as yearly, communication with the East increases, and more people go and return. Some lepers doubtless would be glad to enter the ward. But that lepers would flock to it may be questioned. For lepers had to be compelled to isolation in the middle ages, and as will be afterwards referred to, lepers are not fond of entering asylums in the East, and human nature is pretty much the same everywhere. But even if the leper ward were always full, the danger of infection under the proper precautions which would be taken, is infinitesimal, and scarcely worth consideration, for it is believed that leprosy is not like small pox or measles communicated through the atmosphere. It would certainly be better for the leper and better for the public if the leper employed in connection with the sale of meat in

London had been in a leper ward instead. For leprosy discharge might be conveyed on meat. And even if not, the idea of a leper in connection with edibles is not pleasant, although often seen in India.

Now although so much has recently been heard about leprosy very few people know what leprosy really is. Only the other day a friend said to me: "Is not that a leper?" pointing to a boy with hip joint disease and crutches; others seeing various forms of skin disease fear it may be leprosy. I quote from a recent work on skin diseases by Dr. C. M. Campbell, speaking of a common skin disease called psoriasis and sometimes lepra, he says: "In every other civilized country lepra is applied exclusively to leprosy. The title lepra at once suggests leprosy to the ignorant, and it is to be feared that unscrupulous use is made of this fact by certain fraudulent quacks who rather encourage than disabuse their terror-stricken patients in their belief that their psoriasis is a variety of leprosy." Leprosy has in fact from the time of the Greek writers been confused with various other diseases. Sometimes leprosy has been described under other terms, sometimes other maladies have been called leprosy, some of the maladies with which it has been confounded are psoriasis, alopecia, elephantiasis, or tropical big leg, and leucoderma or white skin. The latter confusion seems to have originated from the expression used in the Bible: "A leper as white as snow." But *leucoderma* or white skin—so often seen in the East—is simply an affection of the skin, while leprosy is a malady of the general system. The one is harmless but disfiguring, especially to the dark skin, the other is both disfiguring and fatal. When leprosy is mentioned in Scripture it is spoken of indefinitely—at one place as a minor or any skin disease in another place as a serious disorder. Whether this results from errors of translation or otherwise is questionable, but the mistake has been made and has been perpetuated.

It is not my intention to describe leprosy in a medical sense, but a few words on the subject appears desirable. The early symptoms noted—although none of them are of invariable occurrence—have been pains often mistaken for rheumatism; thickened finger nails; loss of feeling in a little finger or toe; wasting of the ball of the thumb; increase of size of the ear lobes; and sore eyes. When confirmed, the disease may present three distinct aspects, or these may be combined. There may be loss of sensation in some part of the body, there may be circular blotches on the body, or there may be tubercles or growths in the skin. From the descriptions we have of the leprosy of the middle ages the first condition mentioned does not appear to have attracted much notice as a sign of leprosy. However the disease commences, ulceration eventually takes place, the fingers and toes rot off, the throat and internal organs become affected, and the person dies of lung or bowel complication and exhaustion. Leprosy however is a disease of very slow progress, the

average duration being in Europe $18\frac{1}{2}$ years and in India $12\frac{1}{2}$. Persons live with the first stage of leprosy developed for an indefinite period, and in every assemblage of lepers some may be found in whom the more advanced stage of the disease has become quiescent, in fact it sometimes remains quiescent so long that the leper dies of something else. Contrary to the general idea, leprosy is not a very painful disease; for the pain of the leprous sore is in inverse ratio with the sensibility of the part which is very much lessened. In some instances flame is not felt. Cases have been known of the hands being burnt while cooking, and the parts being gnawed by rats without the person knowing it. In the first stages of the disease the Indian leper often appears contented and even happy, and resigned to what he calls his *nusseeb* or fate. In the latter stages of the disease lepers become morose, inclined to brood in solitude, drink spirits, eat opium, and smoke gungah. Formerly, before it was put a stop to by the British Government, "sumagh," or burial of lepers alive was a common practice in India; but always I believe with the consent of the leper himself, who frequently declaring to his relatives and friends that he was tired of life, would ask them to perform sumagh. Then a hole was dug, the leper escorted to the grave with flags, drums, tom-toms, and other native im-musical instruments. Then the leper was placed in the hole in a sitting posture and the earth filled in.

The weight of collected evidence accords with my own experience and demonstrates that leprosy must be regarded as an hereditary disease. It was so regarded in the middle ages, for De Chaulliac in his instructions how to diagnose leprosy mentions enquiry as to heredity. The fact of leper families abounding in the East cannot be ignored, although as is the case with all hereditary diseases it does not follow that every child of a leper must be a leper. I have often and particularly inquired into this subject, for there are some who attribute leprosy to anything but heredity. At least 30 *per cent* of lepers have a certain family history of leprosy, and at least another 20 *per cent* have a doubtful family history of leprosy. It must be recollected that as the case with other hereditary maladies, leprosy may not attack one generation but it may re-appear in the next. There is nothing extraordinary in this, for we not only have peculiarities of structure, features, and dispositions even, appearing in the first and second generation; but even characteristics of remote ancestors are occasionally reproduced in modern descendants. The germ of leprosy is probably—and certainly, if it is the microbe we can see—as specific, although so much smaller, as a seed; and it may or may not be transmitted from parent to offspring.

But while leprosy is hereditary it is nevertheless, under certain circumstances, contagious. Popular belief has pointed at all times, and in all countries to the propagation of leprosy by contagion and infection. All arrangements for what was called leprosy in the middle ages were based on

this belief. In England the isolation of so called lepers, was enforced as much as possible, either in their own dwellings, or in leper houses. They wore a special costume, in the shape of a long grey garment, without any ornament or lace on it, and with hood drawn over the face. They carried a wooden clapper, or a bell, to give warning of their approach. They were forbidden to walk on narrow paths, and they were not allowed to enter milk or bath houses, to touch healthy people, or to eat with healthy people, or to wash in streams. They were also not permitted to enter churches, but were allowed to look in through the windows. There was a wholesome fear abroad of lepers, and this was taken advantage of by persons dressing as lepers for the purpose of theft and crime.

At present in India, there is much diversity of opinion with regard to association with lepers, and persons who have visited India give different accounts. But it should be recollected that India is a vast territory, with a population composed of different nations and sects having varied habits, customs, religions, opinions, and languages, and calling leprosy by different names. As a general rule in the north of India, the leper is regarded more or less as an outcast. In the south of India, this aversion does not prevail to the same extent. But the feeling with regard to lepers varies in different districts, and even in different villages. In some places so long as the leper can work or obtain his living anyhow he is no outcast. His fellows reside in the same house with him, partake of the same food, and allow him to marry. But according to old Hindu law, a leper cannot inherit estate, as being impure he is debarred from the sacred duty of lighting the funeral pile.

The curious custom of the Parsees who expose their dead on towers to be eaten by vultures seems to have had its origin in protection from contagious diseases such as leprosy. The leper being considered impure was to be taken to a high remote place, that his body might be consumed by birds of prey. High places became the property of the priesthood, and they were found lucrative. Some one started the happy idea that all persons were impure, if not physically at least morally, therefore all should be consumed by birds. Towers of masonry took the place of high places, one of the best sites for building purposes, so much required in Bombay, being now occupied by the Parsee towers of Silence.

In some parts of India, leprosy is thought a punishment sent by God, and the leper is regarded with awe and superstition. It is this, quite as much as public charity, which enables so many lepers to obtain a living as mendicants. If the malady is chronic and does not entail much suffering, most Indian lepers would rather endure the disease which enables them to get a living by begging, than be free from it on the condition of working. It must be recollected they are all more or less fatalists. Thus many, while taking advantage of asylums during the wet seasons prefer their liberty and begging in the other parts of the year.

It is generally believed that there were a great number of leper houses in Europe during the middle ages. It has been stated there were 19,000. But antiquarians are of opinion that this only marks the number of manors or commanders of the Hospitallari (or order of Knights afterwards mentioned), and that the probable number of leper houses was nearer 2000 than 19,000. These leper houses of the middle ages were established in various manners and differently supported. In some instances they were established by governments, in other instances by municipalities, and a third class by private benevolence. When no longer required they were disposed of in various ways. One at Aberdeen was sold, and the money devoted to a lunatic asylum, which still exists; others, there is reason to believe, became alms-houses. On the continent, however, some well endowed leper houses excited the cupidity of Philip v. of France, who subjected the inmates to the flames, under the plea that he purified both their bodies and souls, and prevented the lepers fouling streams and wells, (Merezay Rotinan, of France). Like our hospitals of the present day, some of the leper houses were poorly supported, but some were rich. For indulgences were granted by Priests and Bishops to those contributing to them, a means of acquiring the needful not productive in these unbelieving modern days. And it would appear, that when funds admitted, the lepers were well fed—for at this early date, they seem to have appreciated the value of good diet in leprosy. For instance, at a leper house near St. Albans, every leper on the feast of St. Martin was to have one pig; and, by-the-by, we should not at the present time think pork a good diet for a leper. But at the feast of St. John the Baptist, they were to have two bushels of salt, and we do think now that salt is a necessity in the treatment of a leper.

At the Sherburn Hospital the daily allowance was a loaf weighing 5 marks and a gallon of ale each, flesh 3 days and fish, cheese, or butter 4 days in the week. On Saint's days a double mess. In Lent fresh salmon. On Michaelmas day a goose for every four. Salt was given daily. During Lent each had a ragen of wheat to make furmenty. Sometimes greens and onions. At Michaelmas each received a lot of apples.

It is worthy of note with reference to some ideas recently propounded that leprosy is caused by a fish diet—of which more anon—that fish was a frequent diet in the old leper houses showing that fish was not regarded as a cause of the disease in those days.

With regard to the Government of these leper houses they appear to have been differently arranged: certain of them were under the local authorities, others appear to have been under the Knight Hospitalles or Knights of St. Lazarus. This was a semi-military, semi-religious order of Knighthood. Belloy carries it back in Palestine to a very early period of the history of the Church. They appear to have been self-constituted at first, but afterwards amalgamated

with the orders of Notre Dame, Mount Carmel, and St. Maurice. These Knights seem first to have come to England in the reign of King Stephen. They had their head quarters at Burton in Leicestershire, but they founded various stations or Hospitals, one being St. Giles in London. First they undertook the cure of sick generally. Then a large number devoted themselves to what was called leprosy, and at last there was a sect of the order, who were all lepers, and were obliged to elect a leper as the Grand Master. Some of these companies acquired considerable wealth, but it does not appear that they spent it all properly; and many of the companies were under the control of Abbots or Monasteries. For example, at St. Giles, Norwich, there was a master or Prior—eight canons or chaplains—7 choristers—2 clerks—2 sisters—all to attend to 8 lepers! Neither does it seem that any of the leper houses contained a large number of lepers. Thus the house at Ayr had 8, at Rothwell 7, at Greenwich 5, at Glasgow 6, at Carlisle 13, at Bolton 13, but at Sherburn near Durham there were 65.

The manner in which the leper inmates of these asylums were treated is curious. They were obliged to take certain oaths before entering, against immorality of various kinds; those who could not attend prayers were required to say matins, nones and vespers, and those who were too weak for anything of the kind were "let to rest in peace." During Lent and Advent at Sherburn and other places all were required to undergo scourging 3 days a week; which must have been rather detrimental to the disease. But these leper houses of the middle ages were not intended as places of cure but merely for the reception of lepers. Into most of the houses the entrance of females was strictly forbidden, except the laundress, who was to be of mature age and discreet conduct.

The manner in which lepers were taken to leper houses appears also to have varied. Sometimes a royal warrant was issued. At others local authorities seem to have had the power. But still it would seem that some medical examination was considered necessary before consigning a person to a leper house, and Guy de Chaulliac before quoted, gives long details as to how lepers are to be distinguished by unequivocal and equivocal signs.

Lepers, however, appear to have been subject to other ills than that arising from their disease. For in 1646, Janet Preston was tried for witchcraft, the principal evidence being that of John Kincaird, the public pricker, who stated that the woman could not feel the prick of a pin on certain parts of the body, evidently because they were anæsthetic from leprosy. As there was a public pricker, doubtless many persons, lepers, were accused of sorcery.

Now, although we are painfully interested in the lepers of other countries, and especially in the lepers of India, still charity begins at home, and we are perhaps more vitally interested in the question of leprosy again becoming a common disease in this country. Leprosy is usually supposed

to have appeared in England on the return of the Crusaders who were presumed to have imported it. The first relay of Crusaders left England in 1096, and the remnant returned two years afterwards. But more than a century previously, in 950, leprosy was the subject of legislation in France and Wales, the Welsh King Hoel Dha ordering that it should be a sufficient reason for divorce, (Celtic General Repository viii. 199). And in 1089 a leper house was established by the Archbishop of Canterbury. Whenever, however, leprosy first appeared in Great Britain it prevailed more or less till within the last three centuries, for the last leper house established was in Edinburgh in 1591, being most prevalent in the twelfth and thirteenth centuries. It was known in England as joint evil, mickle evil, the great disease, some of which names are certainly more applicable to other maladies.

Now we know that leprosy has been introduced into the Sandwich Islands, probably by the Chinese, for it was not known there before 1852. And this has been brought forward as a reason why it may be introduced here. But it should be recollected that the climate of the Sandwich Islands is tropical, and the natives without much stamina, with habits and customs like those of the Indians, favourable to the spread of leprosy. Of course what has happened may happen again in this country, but I for one regard the danger of leprosy again becoming common in Great Britain as infinitesimal, if not actually *nil*. And for the following reasons. Although it may not be questioned that leprosy did once prevail in England, there is equally no doubt that it never was so common as supposed; for as afterwards will be referred to, the term was applied to various other maladies which prevailed.

In India where lepers abound the disease is, in ratio to number of population, comparatively rare. In Bombay, Madras, and Calcutta, there are generally one or two European lepers to be met with, but I do not recollect ever having seen any European leper in other parts of India. This has been attributed to Europeans not being reared in the country and not exposed from the days of their youth to subtle climatic agencies, to their being better fed, nourished and cared for in a sanitary sense, than the lower classes of natives, among whom the disease so much prevails: to their wearing shoes and stockings: also to constitutional immunity from the disease. The latter, however, is questionable, for we know that leprosy has prevailed in England, although not to the extent which has been supposed, and that it does prevail in Norway at the present time. But as before observed it may be doubted if the leprosy in cold climates is the inveterate disease we see in the east; it is certain that the endemic distribution of leprosy now corresponds as regards intensity with the belt of maximum heat of the globe, and the Chinese consider a sojourn in the cold north as a cure for leprosy. It must be recollected that leprosy flourishes best under bad sanitary conditions; under, in short any conditions of life which depress the constitution below *par* especially among ill-fed populations. Hence it has been attributed to

want of salt in the diet, a want which many natives of India suffer from. Now it is well known that salt is essential in the animal economy, but want of salt will not cause leprosy, for leprosy obtains throughout Marwar in Western India, where the country abounds with salt; and even on the banks of the great Sambhursalt lake, where salt may be had for the asking. It has also been attributed to a vegetable diet, but it prevails amongst flesh eaters. It has also been attributed to a fish diet, but it prevails where the people never see fish. In a recent *British Medical Journal* an eminent London surgeon refers leprosy to a fish diet. Of course leprosy has been attributed to Malaria, for there are very few maladies which have not been ascribed to Malaria. But leprosy occurs in northern countries such as Norway which is said to be without the Malaria zone. Now when leprosy is said to have prevailed in England Sanitation and Hygiene were unknown. When English people added to the natural damp of the ground near their houses by maintaining stew ponds and moats for the supply of fish to supplement a meagre diet; when instead of boards and carpets, damp rushes and often rotting rushes were strewn on an earthen floor: when raised bedsteads had not been invented; when in the absence of glass windows, the night air penetrated freely, or was kept out by hermetically stuffing the apertures: when ventilation was unknown, and overcrowding the rule: when agriculture was rude and drainage unknown, when every house had its cess-pool, our forefathers suffered, not only from leprosy, but from such maladies as plague, ague, boils, dysentery, scurvy, and various skin diseases. It is indeed certain that many maladies not leprosy were regarded as leprosy when it prevailed, as has been said, extensively in England. On these heads I refer to an antiquarian authority.

The late Sir J. Y. Simpson of Edinburgh who investigated the subject some years ago, says, there is reason to believe that leprosy was used as a generic term including under it different varieties of cutaneous affection. (Ed. Med. J. 1841). And again, there is great probability for the belief that persons who had the misfortune to be affected with foul and inveterate cutaneous maladies, were shut up along with lepers. Bateman in his *synopsis of cutaneous disorders*, adduces evidence from the direct observation of Hurst, Forrestus, and Readin, in the 16th and 17th century, that this was the case. And there is an old manuscript extant which details how a female being accused of saying her prayers backwards was seized as a witch when a so called leper came to the rescue and bared his arm covered with scurf most piteous to behold; which is not a symptom of leprosy.

Again in 1736, Mr. Andrew Fiskien gave an account of lepers in the Shetland Islands. He says that in one island there were five women who laboured under a disease that generally in this place gets the name of *leprosi*, though

others allege it deserves rather to be called scurvy. In an old edition of Johnson's dictionary, I find leprosy described as a loathsome distemper which covered the body with a kind of white scale, a description much more applicable to certain skin diseases than to a blood disease such as leprosy. But leprosy seems to have been a term applied to anything impure. Thus Bacon wrote: "If the crudities, impurities, and leprosites of metals were removed, they would become gold." As showing how false impressions are perpetuated, I will refer to Bishop Heber's travels in India. The worthy and simple minded ecclesiastic writing of the Malabar coast boatmen said, the backs and limbs of many of them were covered with scales like leprosy. Now I will refer to my "Manual of the Diseases of India," published a couple of years ago, it is there stated, "The backs of native boatmen are often seen covered with pityriasis which consists of minute scales among which a fungus, *microspion furfurans* is detected. It is attended with little inconvenience, the scales glisten in the sun which has led to the term pityriasis vesicolor. They give rise to an appearance like tortoiseshell, and are often considered a mark of beauty." But the good Bishop did eventually see a real leper at Mutra who said he had heard of the Bishop, and had come two days journey to ask blessings and alms. A more experienced Anglo-Indian would have taken this statement with sufficient salt to relegate the lepers home to the nearest bazaar.

The Rev. Dr. Jessop, the antiquarian, in his "*Village life five hundred years ago*," tells us of the environments of the population, when plague, black death and leprosy were common. In many places the village wells from which the general supply of water was obtained was in or near the churchyard. The majority of houses were dirty hovels run up anyhow, (not so good as jerry built London houses, which implies a great deal). They were covered with turf, sometimes with rotting thatch. None of them had chimneys. The labourers' dwellings had no windows, the hole in the roof which let out the smoke was the aperture through which the light penetrated when the door was closed. The labourer's fire was in the centre of his house, he and his wife and children huddling round it, sometimes grovelling in the ashes. Going to bed meant flinging themselves down on rotting straw. The absence of vegetable food, and Dr. Jessop might have added insufficient food, during the greater part of the year, the personal dirt of the people, the sleeping at night in the clothes worn in the day, made diseases frightfully common. "At the outskirts of every town in England, there were crawling about emaciated creatures covered with loathsome sores, living, heaven knows how; they were called by the common name of lepers." Now much of the above is applicable to village life in some parts of India, although village sanitary reform has received great attention. But the masses of the people of Indian village life live very much as the poorer English people lived hundreds of years ago. Their houses do not protect them from the weather

sufficiently; their clothing is not adapted to the seasons; their water supply is often vile; their conservancy is deficient; their drainage is neglected; and their food is innutritious; they work hard under a burning sun; and they have many habits and customs anything but conducive to robustness. Among the rice eating population, which however contrary to the general impression, constitutes a comparatively small number of the population, chronic anæmia or debility, or a scurvy taint is an ordinary condition. Among those who live chiefly on cereals, digestive and scorbutic disorders are common. Born of a poorly fed race nursed by a semi-starved mother, working hard on food, the use of which is semi-starvation, want of nutrition renders the system prone to the attacks of any disease microbe, which in a more robust system would probably be innocuous.

We may not in England have yet attained to Dr. Richardson's standard of sanitary perfection, but still very much has been done, and the decline of maladies mentioned before as prevailing was coincident with or a sequel of the advance of civilization and sanitation. The better our people are fed, housed, clothed, the less likely will they be to contract leprosy. The influence of a good diet on leprosy is especially seen in the treatment of the malady. Under good diet, the use of various kinds of oils and tonic medicines, the leper generally improves. The feeble leper becomes a robust leper, and the disease is often stayed, but not eradicated, for the leper remains a leper still.

Mr. Clifford in his article on Father Damien, in the Fortnightly Review tells us that the Rev. Father fared poorly on porridge, dry biscuit, pie, occasionally meat, and cold water. The branches of a tree did quite well for shelter. When rain poured down he shook himself and dried in the sun. Had the manner of life been different it is possible leprosy would not have developed, and he certainly would not have succumbed so soon.

There is also another reason why leprosy is not likely to spread in this country. Although no doubt a great many foolish marriages are made, English people are not likely to marry lepers; but in the East they are not so particular.

Again it is not very likely that English people would sleep with lepers, although a case has been recorded in 1887 of a person contracting the disease in India and coming to Ireland. His brother who had never been out of Great Britain wore the leper's clothes and slept in the same bed and so contracted the disease. Again in Alicante, a leper came, who living in close intimacy with a friend conveyed the disease to him, and from these two, nineteen other intimates and associates became lepers. There are some things we manage better in England.

There is an impression abroad that nothing has been done in India for the lepers, and people have been saying that to prevent the importation of leprosy into this country, the Government of India should take vigorous action. Mr.

Clifford in his article in the *Fortnightly*, previously referred to, asks, How soon will the Government of India do its duty? And a writer in the *Standard* of June 25th observes: "There "in India, with none to care for him, no one to soothe his "last awful moments, the Hindoo stricken one staggers "blindly to his end, a horror to himself a very real and "tangible source of danger, disease, and death to his neigh- "bour." But as already observed it is difficult to get lepers to take the advantages which are offered. Persons visiting India see lepers in the street begging or even employed in various manners, and are horrified. I do not think there is any reason to suppose leprosy is on the increase in India. But there are no reliable statistics. The lepers have been computed at 200,000, but even if there are so many the proportion to the vast population of India is small—less than .08 per cent. The prevalence of and mortality from malarious fever is very much greater. It amounts to 19 per cent of the total treated while leprosy amounts to .7. But malarious fever is not an importable disease so we do not hear much about it. Lepers manifest their presence in large cities as mendicants, and this leads to an impression that they are more numerous than they really are. It is a mistake to suppose nothing has been done in India. The subject was scientifically investigated by Brigade Surgeon Carter. And only recently when Surgeon General with the Government of Bombay, I was directed to visit and report on all the leper houses in the Presidency of Bombay, also to give my views of what further could be accomplished. Now in the city of Bombay there is a leper ward, detached from the main buildings of the large Jamsetjee Hospital, for 30 lepers, which is entirely supported by the Government, and under the control of the Medical Department. There is also a leper house at Bycullah in Bombay which is not under the control of the Medical Department but to which Government contributes annually. Two or three years back the Roman Catholic Bishop of Bombay established a leper asylum near Bombay, to which Government contributed money, also medicines, and allowed an officer of the subordinate medical department. At Rutnaghery on the Malabar coast, there is a leper Hospital to which Government contributes very largely, which the cure surgeon of Rutnaghery superintends and to which a resident medical officer of the subordinate medical staff is attached. In this Hospital there are about 60 lepers in the dry season, and about 100 in the wet weather.

Then there is a place where lepers are received at Ahmedabad which is under the Civil Surgeon, and at which a special officer is resident. There is also a place at Poona, not in connection with Government. Similarly there are places at Sawusst Wari, a native state, and at Raj Kote the capital of the native states at Kattywar. H. H. the Quik-owar has also recently established an asylum near some mineral springs in Gugerat. At present lepers are not obliged to go to these asylums, neither are they forced to

stop in them any longer than they choose. Many persons have advocated the forcible detention of all lepers in asylums, or in leper villages, and also the segregation of the sexes. Now I at once admit that if this were possible it would do much to diminish leprosy, but it would not eradicate it for a reason afterwards to be referred to. But this separation of all lepers is simply impracticable. There are so many lepers, that the expense—particularly in these days of depreciated silver—would be prohibitive. Even if this difficulty could be overcome nothing but force would constrain lepers to remain in leper asylums or in leper villages. They would sneak or wander away in spite of any regulation or guards, and they would consider any attempt to restrain their liberty as “zoolum” or tyranny on the part of the British Government. Leprosy induces a peculiar irritable and peevish disposition, and in our leper asylums we were obliged to humour them considerably to retain the number present we did. Moreover in some parts of the country we should not have the sympathies of the general population with us, for they would certainly sympathize with the objections of the lepers; although as education advances this feeling would lessen. It has been before stated that in some districts lepers are regarded with awe and superstition and as fit subjects for charity which generally takes the shape of doles of food. Natives of India have been accustomed to seeing lepers about from time immemorial and there are no people in the world more wedded to habit and custom. They have been habituated to give doles to lepers, and their promiscuous charity could not be diverted to leper houses. Again, the duty of collecting and guarding lepers must be confided to the police. The people would immediately fear, and perhaps not without some reason, that persons, not lepers, would be taken possession of by the police, to extort money, or to gratify private spite, or to gratify the malice of some one else—just as sane persons have been seized as lunatics in this country. And although it is to be presumed that when a person was found not to have leprosy he would be liberated, still he might be dragged miles away from home, and submitted to great inconvenience. A native paper, the *Gujerah*, recently asked the very pertinent question whether it was desirable to shut up a person in the first stage of leprosy in an asylum full of those suffering from an aggravated form of the disease. And it is observed in a recent number of the *Times of India* “Legislation on such a subject is full of difficulties, and it is a very hard matter to frame on the one hand a measure likely to prove effectual and on the other hand to steer clear of such rocks as would render legislation useless. The leper must not be treated as a criminal.”

I mentioned that if all these serious objections could be overcome it would not eradicate leprosy, and now the reason why I have stated that leprosy like other hereditary maladies may avoid one generation and reappear in the next, and no system of separation would prevent this. There is also a

condition of latent leprosy, and a person with latent leprosy in whom the symptoms were not developed, or very faintly developed, may yet have leper children. This is not peculiar to leprosy; there are other diseases in which the poison may remain dormant, although affecting the offspring. The man Yoxall who was engaged in the meat market and was brought before the Epidemiological Society, is a case in point. When young he was a sailor in the Baltic and Mediterranean but had not been out of London for 46 years. Until six years ago he enjoyed good health. So far as is known he had not been in communication with any leper, and the conclusion arrived at was, the probability of the germ remaining dormant in his system for 40 years.

No system of separation or segregation would affect this.

It may therefore be asked can nothing more be done in India to diminish leprosy? The reply is that a good deal may be done indirectly, and it is on these lines that the government of India has recently legislated. The measures proposed are to confer upon district magistrates power to order the arrest of any leper who is found begging or wandering about without means of subsistence, and such lepers may be detained in a retreat for life, or until their discharge is sanctioned, and, if they escape, may be recaptured by the police. No retreat is to be sanctioned unless provision is made for the segregation of the sexes, and the Local Governments are to be empowered to establish retreats with any moneys placed at their disposal for hospitals, dispensaries, and lunatic asylums. Complete religious freedom will be secured to the lepers in such institutions, and the Local Government may make rules for the management, discipline, and inspection of retreats.

It will have, however, to be carefully borne in mind by the executive that a leper is not a criminal to be roughly arrested by any police sepoy and rudely hustled off to solitary confinement.

In addition, there should be a leper asylum near all the civil and military stations under medical supervision.

Then the people should be instructed with regard to leprosy by pamphlets in different languages and even by teaching in the vernacular schools. It is only by appealing to the education, and enlisting the sympathies of the people, that we shall succeed in lessening leprosy in India, and of diminishing the danger of importation to England.

I confess however, that I feel most confidence in the diminution of leprosy in India, and in the prevention of leprosy in this country from the influence of advancing civilization and in the consequent progress of sanitation in the most extended sense of the term, in which I include the cleansing generally of villages and towns, drainage, ventilation, good water supply, the cheapening of salt, the prevention of scarcity, opposition to imprudent marriages, and measures for the prevention of specific disease.